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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.           | CONFIRMATION NO. |
|---|-------------|----------------------|-------------------------------|------------------|
| 10/726,075  | 12/01/2003  | Hong-Ming Tai        | TI-36524                      | 4776             |
| 23494 7590 12/29/2006<br>TEXAS INSTRUMENTS INCORPORATED<br>P O BOX 655474, M/S 3999<br>DALLAS, TX 75265 |             |                      | EXAMINER<br>NGUYEN, PHILLIP H |                  |
|   |             |                      | ART UNIT                      | PAPER NUMBER     |
|   |             |                      | 2191                          |                  |

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE  | DELIVERY MODE |
|--|------------|---------------|
| 3 MONTHS                               | 12/29/2006 | PAPER         |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/726,075             | TAI ET AL.          |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Phillip H. Nguyen      | 2191                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on 01 December 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on 01 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date. _____   | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

1. This action is in response to the original filing of December 1, 2003. Claims 1-28 are pending and have been considered below.

### ***Claim Rejections - 35 USC § 101***

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 22-23 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The language of claim 22 raises a question as to whether the claims are directed to an abstract idea that is not tied to a technological art, environment or machine, which would accomplished a practical application producing a concrete, useful, and tangible result to form the basis of statutory subject matter under 35 U.S.C. 101. For instance, "responds with a negative acknowledgement (NAK)" does not concrete, useful, and tangible ~~business or technical result~~ <sup>result.</sup>

Therefore, the claims are non-statutory. Claim 23 directly depends on claim 22 and suffers the same rejection.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 10 and 27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. For instance, claim 10 recites, "the first time period is **about** five hundred milliseconds and the second time period is **about** fifty milliseconds" is unclear to the examiner as to whether "about five hundred millisecond and about fifty milliseconds" is exactly "five hundred milliseconds and fifty milliseconds" or more or less. For the examining purposes, examiner assumes it can be less or more or exact amount.

Appropriate correction is required.

5. Claims 22-28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. For instance, claim 22 recites, "a microcontroller unit (MCU) that upon **reset configures** the device" is unclear to the examiner as to whether reset the device or configure the device to respond with a negative acknowledgement. For examining purposes, examiner interprets it as either "reset or configure".

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 7, 11-16, and 18-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Larky et al. (United States Patent No.: US 6,311,294 B1).

As per claim 1:

Larky discloses a method for a device to download data from a data source while connected to a host, comprising:

- connecting to a host ("**USB host 12 and the USB device 14 connected together**" Col 5, line 27-28).
- Waiting for a request signal from the host ("**once the host receives the bulk data available signal from the device, it generates and sends one or more bulk data request signals**" Col 6, line 13-15).
- Responding to the request signal with a negative acknowledgement (NAK) to intentionally postpone a response to the request signal ("**sends not acknowledge signals (NAKs) back to the host**" Col 6, line 22-23); and
- Downloading data from the data source for a predetermined time period based on the request signal ("**retrieving the bulk data from the device and some predetermined time out period thereafter so that the bulk data retrieval process in accordance with the invention does not place extra burden on the USB bus**" Col 6, line 46-48).

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As per claim 7:

Larky discloses the method as in claim 1 above; and further discloses:

- repeatedly waiting for a request signal from the host (**"the host continues to send bulk data request signals to the device"** Col 6, line 20-21), responding to the request signal with a NAK (**"sends not acknowledgement signals (NAKs) back to the host"** Col 6, line 22-23) and downloading data from the data source for a predetermined time period based on the request signal, until the data downloaded from the data source has completed (**"retrieving the bulk data from the device and some predetermined time out period thereafter so that the bulk data retrieval process in accordance with the invention does not place extra burden on the USB bus"** Col 6, line 46-48).

As per claim 11:

Larky discloses the method as in claim 1 above; and further discloses:

- the host is a USB (Universal Serial Bus) host and the device is a USB device (**"USB host 12 and the USB device 14 connected together"** Col 5, line 26-27).

As per claim 12:

Larky discloses the method as in claim 1 above; and further discloses:

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- the predetermined time period is monitored by a timer (**"a timer 58 which counts a predetermined time-out period"** Col 5, line 58-59).

As per claim 13:

Larky discloses the method as in claim 1 above; and further discloses:

- determining (**"the device is check to ensure that no data is available"** Col 6, line 24) and downloading a number of data blocks to be downloaded based on the predetermined time period (**"retrieving the bulk data from the device and some predetermined time out period thereafter so that the bulk data retrieval process in accordance with the invention does not place extra burden on the USB bus"** Col 6, line 46-48).

As per claim 20:

Recites the same limitation as in claim 13, therefore, has been addressed in connection with the rejection set forth in claim 13.

As per claim 14:

Larky discloses the method as in claim 13 above; and further discloses:

- the number of data blocks to be downloaded being further based on at least one of a downloaded data rate and a block size (**"the bulk data flow may be such that when the bulk data does arrive, it will come in a burst of small**

**size chunks that are separated by relatively short idle times**" Col 7, line 48-50).

As per claim 21:

Recites the same limitation as in claim 14 above, therefore, has been addressed in connection with the rejection set forth in claim 14.

As per claim 15:

Larky discloses the method as in claim 13 above; and further discloses:

- setting a loop counter based on the number of data blocks to be downloaded (**"time-out counter"** Col 6, line 23).

As per claim 16:

Larky discloses a method for a Universal Serial Bus (USB) device to download firmware while connected to a USB host, comprising:

- connecting to a USB host (**"USB host 12 and the USB device 14 connected together"** Col 5, line 27-28).
- Waiting for a request signal from the USB host (**"once the host receives the bulk data available signal from the device, it generates and sends one or more bulk data request signals"** Col 6, line 13-15).
- Downloading data blocks associated with firmware from a data source based on a predetermined time period associated with the request signal type



**("retrieving the bulk data from the device and some predetermined time out period thereafter so that the bulk data retrieval process in accordance with the invention does not place extra burden on the USB bus" Col 6, line 46-48); and**

- Repeating the waiting for a request signal and the downloading data blocks from the data source, until the downloading of the firmware is complete (**"the host continues to send bulk data request signals to the device" Col 6, line 20-21).**

As per claim 18:

Larky discloses the method as in claim 16 above; and further discloses:

- sending a negative acknowledgment (NAK) to the host to intentionally postpone the transmission of the response to the request signal (**"sends not acknowledge signals (NAKs) back to the host" Col 6, line 22-23).**

As per claim 19:

Larky discloses the method as in claim 16 above; and further discloses:

- determining the signal request type (**"Once there is no more bulk data to be sent, the device sends not acknowledgment signals (NAKs) back to the host...the device checks to ensure that no data is available" Col 6, line 21-24, there are two signals, request signal and NAKs signals, the NAK signal indicates no more data available and the request signal indicates**

**data available**), and setting the predetermined time period accordingly  
**("have a value of between 0 and 255 data frames" Col 6, line 32).**

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 2-3, 22-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Larky et al. (United States Patent No.: US 6,311,294 B1), in view of Novel et al (United States Patent No.: US 7,000,057 B1).

As per claim 2:

Larky discloses the method as in claim 1 above, but does not explicitly disclose:

- the data source comprising non-volatile memory.

However, Novell discloses an analogous method including:

- the data source comprising non-volatile memory ("**EEPROMS, Flash memory**" Col 7, line 18, **EEPROMS and Flash memory are the type of nonvolatile memories**).

Therefore, it would have been obvious to one having an ordinary skill in the art at the time the invention was made to modify Larky's approach to include either EEPROMS or Flash memory for storing data. One having an ordinary skill in the art

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would have been motivated to use EEPROMS or Flash memory for storing data because **they are erasable with an electronic signal and useful for stable storage for long periods without electricity while still allowing reprogramming.**

As per claim 3:

Larky and Novell disclose the method as in claim 2 above; and Novell further discloses:

- the non-volatile memory is at least one of an Electrically Erasable Programmable Read Only Memory (EEPROM) and a Flash memory (**"EEPROMS, Flash memory"** Col 7, line 18).

As per claim 22:

Larky disclose a Universal Serial Bus (USB) compatible device, comprising:

- a microcontroller unit ("**microcontroller 56**" Col 5, line 56) that upon reset configures the device, such that the device responds with negative acknowledgement (NAK) in response to a request signal from a host controller, until downloading of firmware to the MCU has completed ("**sends not acknowledge signals (NAKs) back to the host**" Col 6, line 22-23).

However, Novell discloses an analogous device comprising:

- a non-volatile memory for storing electronic instructions (**"EEPROMS, Flash memory"** Col 7, line 18, **EEPROMS and Flash memory are the type of nonvolatile memories**).

Therefore, it would have been obvious to one having an ordinary skill in the art at the time the invention was made to modify Larky's approach to include either EEPROMS or Flash memory for storing data. One having an ordinary skill in the art would have been motivated to use EEPROMS or Flash memory for storing data because **they are erasable with an electronic signal and useful for stable storage for long periods without electricity while still allowing reprogramming.**

As per claim 23:

Larky and Novell disclose the device as in claim 22 above; and Larky further discloses:

- a memory ("**buffer 32**" Col 4, line 42) for storing a download pointer to track the firmware download.

As per claim 24:

Larky and Novell disclose the device as in claim 22 above; and Larky further discloses:

- the microcontroller unit (MCU) downloads data blocks associated with the firmware for a predetermined time period based on the request signal type from the host controller ("**retrieving the bulk data from the device and some predetermined time out period thereafter so that the bulk data retrieval process in accordance with the invention does not place extra burden on the USB bus**" Col 6, line 46-48).

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As per claim 25:

Larky and Novell disclose the device as in claim 24 above; and Larky further discloses:

- the microcontroller unit (MCU) further determines the number of data blocks to be downloaded for the predetermined time period based on download data rate and a block size ("**the device is check to ensure that no data is available**" Col 6, line 24).

As per claim 26:

Larky and Novell disclose the device as in claim 24 above; and Larky further discloses:

- the predetermined time period is a first time period for a signal with data stage and a second time period for a signal without a data stage ("**the host continues to send bulk data request signals to the device**" Col 6, line 20-21, **the response for the first time signal with data, and the second respond without data when there is no data to be sent**).

As per claim 27:

Larky and Novell discloses the device as in claim 26 above; and Larky further discloses:

- the first time period is about five hundred milliseconds and the second time period is about fifty milliseconds milliseconds ("**during any file transfer, may**

**introduce 5 ms gaps into the data transfer at various points during the data transfer. Therefore, the time-out period would be adjusted so that the 5 ms period would be considered a short idle time so that the host continues to send IN tokens during these short gaps" Col 8, line 7-12).**

As per claim 28:

Larky and Novell disclose the device as in claim 23 above; and Larky further discloses:

- a timer ("a timer" Col 5, line 58) for monitoring the firmware download.

10. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Larky et al. (United States Patent No.: US 6,311,294 B1) as applied to claim 2 above, in view of Novell et al. (United States Patent No.: US 7,000,057 B1), and further in view of Chea, Jr. et al. (United States Patent No.: US 6,574,309 B1).

As per claim 4:

Larky and Novell disclose the method as in claim 2 above, but does not explicitly disclose:

- reading a signature from the non-volatile memory and validating the signature prior to connecting to the host.

However, Chea, Jr. discloses an analogous method discloses:

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- checking the signature before connecting to the host ("**the cross connect 110 will check the signature S before the enable signal is generated**" Col 8, line 23-24).

Therefore, it would have been obvious to one having an ordinary skill in the art at the time the invention was made to modify Larky and Novell's approaches to include checking signature before connecting to the host. One having an ordinary skill in the art would have been motivated to check the signature prior to connecting to the host **because in order to ensure that the correct copper loop pair is hooked up before switching on the power source** (Col 8, line 21-22).

As per claim 5:

Larky, Novell, and Chea disclose the method as in claim 2 above; and Novell further discloses:

- reading descriptor information from the non-volatile memory prior to connecting to the host ("**the cross connect 110 will check the signature S before the enable signal is generated**" Col 8, line 23-24, **in order to check the signature S, descriptor information must be read**)

11. Claims 6, 8-10, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Larky et al. (United States Patent No.: US 6,311,294), in view of Kurihara et al. (United States Patent No.: US 6,516,359 B1).

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As per claim 6:

Larky discloses the method as in claim 1 above, but does not explicitly disclose:

- setting a pointer for tracking data downloaded from the data source.

However, Kurihara discloses an analogous method discloses:

- setting a pointer for tracking data downloaded from the data source ("**upon receiving the first audio data, the writing unit 302...the writing pointer of the writing unit 302 points to a small address of the buffer memory 124**"

Col 15, line 27-30).

Therefore, it would have been obvious to one having an ordinary skill in the art at the time the invention was made to modify Larky's method to include a pointer for tracking the downloading data. One having an ordinary skill in the art at the time the invention was made to recognize the advantage of using of pointer and including in Larky's approach because **if the value of the writing pointer of the writing unit 302 reaches the midpoint of the buffer memory 124, a signal indicating this fact is sent to the writing time measuring unit and also to the starter 305. Upon receiving the signal, the writing time measurement unit 306 terminates the measurement of the elapsed time** (Col 15, line 47-54).

As per claim 8:

Larky and Kurihara disclose the method as in claim 6 above; and Kurihara further discloses:



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- updating a download pointer each time the predetermined time period is completed (**"the writing pointer is updated so that the address immediately follow the above described memory area is pointed to"** Col 15, line 35-37).

As per claim 17:

Recites the same limitation as in claim 8 above, therefore, has been addressed in connection with the rejection set forth in claim 8.

As per claim 9:

Larky and Kurihara disclose the method as in claim 8 above; and Larky further discloses:

- the predetermined time period is a first time period for a data request signal, and a second time period for a status request signal (**"the host continues to send bulk data request signals to the device"** Col 6, line 20-21, which means, the predetermined time period is a first, second, third, and so forth for data request signals).

As per claim 10:

Larky and Kurihara disclose the metho as in claim 9 above; and Larky further discloses:

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- the first time period is about five hundred milliseconds and the second time period is about fifty milliseconds (**"during any file transfer, may introduce 5 ms gaps into the data transfer at various points during the data transfer. Therefore, the time-out period would be adjusted so that the 5 ms period would be considered a short idle time so that the host continues to send IN tokens during these short gaps"** Col 8, line 7-12).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phillip H. Nguyen whose telephone number is (571) 270-1070. The examiner can normally be reached on Monday - Thursday 10:00 AM - 3:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wei Y. Zhen can be reached on (571) 272-3708. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PN  
12/19/2006

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